

Application No. 10/074,597
Amendment "A" dated April 6, 2004
Reply to Office Action mailed January 6, 2004

REMARKS

Claims 17-33 are withdrawn from consideration. The Office Action rejected claim 3 as failing to comply with the written description requirement. The Office Action rejected claims 1-4, 12-16 and 34-35 as anticipated. Finally, the Office Action rejected claims 5-11 as obvious. By this response, Applicant has amended claim 35 to correct dependency therein. In addition, Applicant has cancelled claim 3. Applicant submits that the minor amendment to claim 35 does not add new matter and respectfully requests entry thereof. Applicant asserts that claims 1-16 and 34-35 are in condition for allowance in view of following remarks.

A. Summary of Invention

The present invention is directed to an article, such as a chair, having filler material which can be reduced in size for purposes of storage and/or transportation. The chair includes an air permeable bladder, e.g., fabric or mesh material, in which the filler material is placed. The chair is placed inside a vacuum chamber and the air from the filler is removed by suctioning the air from the filler through the air permeable bladder, thereby compressing the chair. See Specification, pp. 11-13. In one embodiment, the vacuum bag is then gathered at the neck into a plume to leave a partial opening. See Specification, pp. 14-17. The compressed chair is then placed in a storage container (e.g., a bag or a box). See specification, p. 20. Advantageously, through the suction of the air through the air permeable bladder, the chair can be reduced to a size that is much smaller than its original size to facilitate packaging, transporting, and storing the chair. Upon delivery to a desired location, air can refill through the air permeable bladder into the filler such that the chair can be comfortably and conveniently used.

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B. Summary of Davis Reference

U.S. Patent No. 4,327,046 to Davis et al. is not directed to a process for suctioning air through an air permeable bladder or to a process for allowing air to refill into a filler through an air-permeable bladder. Instead, the Davis reference teaches the use of a "highly elastic rubber bag for forming the adaptive seating system, *preferably a commercial latex rubber weather balloon.*" '046 patent (Davis), Column 5, line 24 (emphasis added). Latex rubber weather balloons are designed to retain air therein, not to enable air to be suctioned or refilled therethrough.

The Davis reference is actually directed to a process for manufacturing a rigid, shaped support that patients can sit on. The rigid support is formed from rigid beads uniformly distributed in a binder material. '046 patent, col. 2, ll. 63-68, col. 3, ll. 1-3. The beads and binder material are mixed in a flexible, elastic polymeric container (preferably the aforementioned latex rubber weather balloon) and the excess air is removed from the container. Col. 3, ll. 25-46. The vacuum is maintained for a period of time to allow the binder material to "set up." Col. 7, ll. 30-40. After the binder material is set, the container material can be left on to provide a cover. Alternatively, the container material can be removed and the surface of the rigid support painted with a waterproof film. '046 patent, col. 5, ll. 42-68.

Significantly, the Davis reference is directed to a support which conforms to a certain shape and then is fixed to that particular shape, rather than disclosing a process for suctioning air through an air permeable bladder or to a process for allowing air to refill through an air-permeable bladder.

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C. Anticipation Rejection

Page 3 of the Office Action rejected claims 1-4, 12-16 and 34-35 as anticipated in view of the Davis reference. However, the Davis reference fails to teach the use of "an air permeable bladder" as recited in independent claims 1 and 35. Hence, the Davis reference does not teach each of the limitations recited in these claims or their related dependent claims. Thus, the anticipation rejection should be withdrawn. In addition, the Davis reference does not teach "a storage container" as recited in claim 12-14. Thus, claims 12, 13 and 14 are also distinguishable on this basis.

D. Obviousness Rejection

Page 4 rejected claims 5-11 under 35 U.S.C. § 103(a) as being unpatentable over the Davis reference. However, claims 5-11 are not obvious in view of the Davis reference.

To set forth a *prima facie* case of obviousness the following elements must be shown, according to M.P.E.P. Section 2143:

(1) suggestion or motivation, either in the references themselves or in the knowledge available to one skilled in the art, to modify the reference or combine reference teachings;

(2) a reasonable expectation of success; and

(3) the combined references must teach or suggest all the claim limitations of the applicant's claims.

One of skill in the art would not be motivated to modify the support of the Davis reference to include "an air permeable bladder." Instead, Davis teaches away from the use of an air permeable bladder. Davis specifically teaches in detail about the need for a smooth surface, not about the need for air permeability. In fact, Davis specifically teaches the use of rubber bags.

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The Davis reference describes in detail the characteristics of its flexible bag, in which its binder and beads are placed, such as follows:

"With respect to the flexible container, commercial 'bags' are usually made from flexible vinyl upholstery materials." '046 patent, col. 5, line 1.

"This problem has been solved ... by using a highly elastic rubber bag ... preferably a commercial latex rubber weather balloon." '046 patent, col. 5, line 22.

"When the elastic bag is evacuated, it compresses uniformly to produce a seat with a wrinkle-free, smooth surface." '046 patent, col. 5, line. 39.

The Davis reference explains in detail why it is critical to the Davis teachings that the flexible container be an elastic bag. Creating a smooth outer surface on the support is very important to the Davis reference, which states that:

In attempting to rigidify such conventional bags with the foregoing particle/adhesive resin binder formulation, unexpected problems are encountered. When the adhesive binder is poured into a conventional plastic bag filled with polystyrene beads and the bag is shaped to fit the contours of the patient or object to be supported, the resin can be cured, but the resultant structure has weak spots because the adhesive-coated beads are only loosely packed at best. To ensure tight packing of the beads (so-called "closest packing" being the theoretically preferred limit), it has been discovered that a relatively high vacuum must be applied to evacuate trapped air from the bag and compress it tightly, whereby the beads are held firmly together as the adhesive resin cures. The resulting structure is strong, but since the conventional bag wrinkles badly upon being evacuated, portions of the bag material become imbedded in the surface of the cured particle-adhesive resin composite and cannot be removed without damaging or destroying the surface of the appliance. This problem has been solved according to the invention by using a highly elastic rubber bag for forming the adaptive seating system, preferably a commercial latex rubber weather balloon. When such an elastic container (the inner surface of which can be pre-coated with a suitable mold-release agent) is filled with polystyrene beads and adhesive binder resin, the system has the desirable consistency and feel of bread dough. Because the bag is highly stretchable, it can be molded with hand pressure to virtually any shape and size desired, which is not possible with conventional nonelastic bags. This is a critically important feature, particularly in the case of seating and support appliances for disabled persons, since the surface area of the patient's skin in pressure contact with the system is desirably increased as the subject sinks into the plastic mixture, causing the latter to flow up

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around the hips and thighs. When the elastic bag is evacuated, it compresses uniformly to produce a seat with a wrinkle-free, smooth surface.

'046 patent, col. 5, ll. 3-41 (emphasis added).

Since creating a smooth outer surface on the support is very important to the Davis reference, one of skill in the art would not be motivated to put anything in the Davis container that could jeopardize formation of a smooth support surface. Thus, one of skill in the art would not be motivated by Davis to use an air permeable bag, which could cause surface deformations between the container and the binder/bead mixture.

For example, a binder used by Davis may seep through an air permeable bladder, causing undesirable wrinkles or surface deformations. In addition, after the binder and beads are added to the container 2, they are "kneaded to uniformly distribute the binder among the particles." '046 patent, col. 3, ll. 31-32. During kneading of the binder/bead mixture, it would be possible for binder to become plugged on or in the air permeable bag, also producing undesirable surface formations. Such modification could destroy the intended smooth surface of the Davis reference. Thus, Applicant respectfully submits that claims 5-11 are not obvious in view of the Davis reference.

Claims 9-11 are additionally distinguishable over Davis. Claims 9-11 recite "wherein the chair is selectively compressed, then allowed to refill with air." The Office Action asserts that the compression ranges of the chair would be obvious since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. However, again, the Davis reference teaches away from such limitations. The Davis reference teaches as follows:

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. . . . After forming a preliminary impression in container 2 (taking into account the seating needs of the patient), the person is placed into the mold and postured in a comfortable and clinically suitable position. When the desired support has been attained, the vacuum is re-applied at 2 inches Hg absolute to fix the shape of the appliance so that the subject can be removed. The vacuum is maintained for 5 hours following completion of the molding process while the resin "sets up". In this connection, it has been found that, because the vacuum maintains the shape of the mold while the resin is "setting up", if the vacuum is excessive, the impression in the mold may shrink, while a vacuum which slackens may cause loss of the impression. For these reasons, it has been found that a vacuum of between 1 and 4 inches Hg absolute is desirable, with 2-3 inches Hg absolute being preferred.

'046 patent, col. 7, ll. 24-40 (emphasis added).

The Davis reference is directed to a support which conforms to a certain shape and then is fixed to that particular shape. The Davis reference specifically teaches away from allowing the shape of the support to expand back to any particular size. Indeed, if the support were allowed to expand after being formed into the desired shape, it would destroy the intended function of the support, which is to conform to the patient's body. Thus, the limitations in claims 9-11 are not obvious in view of the Davis reference.

F. Conclusion

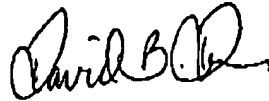
The applicant's claims are not anticipated by Davis since the Davis reference fails to disclose the use of an air permeable bladder. Furthermore, the Davis reference, which teaches the use of elastic bags, such as weather balloons, to form smooth surfaces for patients to sit on, fails to suggest the use of such an air permeable bladder and does not obviate the applicant's claims. The Davis reference does not suggest the refilling of air. Thus, the rejections relating to the Davis reference should be withdrawn.

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Wherefore, Applicant's claims are in condition for allowance. In the event of any question, the Examiner is respectfully requested to initiate a telephone conversation with the undersigned.

Dated this 6th day of April, 2004.

Respectfully submitted,



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